

CLAIMS

1. A device for measuring the intensity of an electric current, of the compensation type,  
5 according to which a magnetic field generated by a primary winding (1) in which the current ( $i_1$ ) to be measured flows is balanced by a magnetic field of opposite direction generated by a secondary winding (2) in which a compensating current ( $i_2$ ) flows, this device comprising a means (3)  
10 sensitive to the field resulting from the addition of said magnetic fields of opposing directions to regulate said compensating current ( $i_2$ ) in closed loop mode,  
15 characterized in that said sensitive means (3) is sensitive only to the direction of said resultant field and, in return, controls the reversal of the direction of circulation of the compensating current ( $i_2$ ) in said secondary winding (2).  
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2. The device as claimed in claim 1, characterized in that said sensitive means (3) is formed by a Hall effect probe with bipolar output signal.
- 25 3. The device as claimed in either of claims 1 or 2, characterized in that said windings (1, 2) are formed on a common core (N) of ferromagnetic material presenting an appropriate hysteresis to provide a limit cycle oscillation of said  
30 compensating current ( $i_2$ ) about a value corresponding to the exact compensation of the field generated by said primary winding (1).
- 35 4. The device as claimed in claim 3, characterized in that it comprises means of measuring a voltage at the terminals of a resistor ( $R_m$ ) placed in series with the secondary winding (2), to obtain from this the value of the current ( $i_1$ ) to be measured,

through that of the compensating current ( $i_2$ ).

5. The device as claimed in claim 3, characterized in that it comprises means of measuring the duty cycle ( $\delta$ ) of the pulse width modulated output signal, delivered by said means (3) sensitive to the direction of said resultant field, to obtain from this the value of the current ( $i_1$ ) to be measured, through that of the compensating current ( $i_2$ ).  
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6. The device as claimed in claim 5, characterized in that it comprises temperature correction means (10) for the circuit of said secondary winding (2).  
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7. The device as claimed in any one of claims 2 to 6, characterized in that it comprises an H-configuration transistor bridge (4) positioned in the power supply circuit of said secondary winding (2) and means (5) for controlling the reversal by said bridge (4) of the direction of the current ( $i_2$ ) circulating in said winding (2), in response to the transitions of the signal delivered by said probe (3).  
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8. Application of the device as claimed in any one of claims 1 to 7, to the measurement of an electric current in automotive electronics.